



**Uva Wellassa University**  
**Faculty of Management**



**Uva Wellassa**  
**University**

**Degree of Bachelor of Business Management in Entrepreneurship and Management**  
**THIRD YEAR SECOND SEMESTER EXAMINATION - AUGUST/SEPTEMBER 2011**

**EMG 334-2 Actuarial Mathematics - I**

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**Instructions to candidates:**

No. of pages : Eight (08)  
No. of questions : Twenty (20) MCQs  
                                  : Two (02) Essay  
Time allocation : Two (02) hours  
Marks allocation : 100 Marks

Index Number:

**Answer all questions**

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## Part B – Essay Questions

Answer all questions

01.

- i) Write down the meaning of the following notations in your terms.
  - a)  $q_{60} = 71\%$ .
  - b)  $s(40) = 0.65$ .
  - c)  $l_{60} = 88,900$ .
  - d)  ${}_{10}p_{20} = 65\%$
  
- ii) The Mathematical Association of America offers the following alternative to members aged 60. You can pay the annual dues and subscription rate of \$ 90, or you can become a life member for a single fee of \$ 675. Life members are entitled to all the benefits of ordinary members, including subscriptions. It is given that current interest is 5% per annum.
  - a) Should one become a life member? Justify your answer.
  - b) What is the probability that you will get at least your money's worth if you become a life member?

02.

- i) Write down short notes on the following topics:
  - a) Whole life insurance.
  - b) Net single premium.
  - c) Actuarial present value.
  - d)  $n$ -year term insurance.
  
- ii) Assuming  $i=5\%$ , write an expression for the present value of the benefit to (25) specified by the following insurance if death occurs at age 55.7;
  - a) 1000 of whole life payable at death.
  - b) 1000 of whole life payable on the policy anniversary next following death.
  - c) 1000 of 30-year term insurance with benefit at death.
  - d) 1000 of 25-year endowment insurance with death benefit payable at death.